

**Small RNAs in early mammalian development: from gametes to gastrulation.**

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**Public Summary:**

**Scientific Abstract:**

Small non-coding RNAs, including microRNAs (miRNAs), endogenous small interfering RNAs (endo-siRNAs) and Piwi-interacting RNAs (piRNAs), play essential roles in mammalian development. The function and timing of expression of these three classes of small RNAs differ greatly. piRNAs are expressed and play a crucial role during male gametogenesis, whereas endo-siRNAs are essential for oocyte meiosis. By contrast, miRNAs are ubiquitously expressed in somatic tissues and function throughout post-implantation development. Surprisingly, however, miRNAs are non-essential during pre-implantation embryonic development and their function is suppressed during oocyte meiosis. Here, we review the roles of small non-coding RNAs during the early stages of mammalian development, from gamete maturation through to gastrulation.

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